III. FOLDOVER 1:6 RAMP MAINTENANCE

The maintenance information in this chapter applies to the Ricon ER7-Series FoldOver 1:6 ramp when installed in transit vehicles. The information consists of safety precautions, a maintenance schedule, component information, and diagrams for the electrical system. This chapter is intended to supplement related sections of the vehicle manufacturer Owner Manual and Quick-Start Guide.

A. GENERAL SAFETY PRECAUTIONS

⚠ WARNING!

THIS RAMP IS DRIVEN WITH AN ELECTRO-MECHANICAL MOTOR DRIVE SYSTEM. USE EXTREME CAUTION WHEN DOING MAINTENANCE AND REPAIRS. DO NOT DISCONNECT ELECTRICAL CABLES OR FITTINGS WHEN RAMP IS IN MOTION OR WHEN POWER IS APPLIED TO THE RAMP.

Follow these safety precautions during service of the Ricon FoldOver 1:6 ramp:

- Under no circumstances is maintenance, repair, or adjustment of the FoldOver 1:6 ramp to be performed without the presence of an individual capable of giving aid.
- Give immediate attention to all injuries, and administer first-aid or seek medical attention as necessary.
- Protective eye shields and clothing should be worn during maintenance, repair, and adjustment of the FoldOver 1:6 ramp.
- The user must be cautious when operating the ramp. Be certain that hands, feet, legs, and clothing are not in the path of ramp movement.
- Batteries contain acid that can burn. Wear protective clothing and eye protection at all times. If acid comes in contact with skin, immediately flush affected area with water and wash with soap. Do not place anything electrically conductive on top of battery. Do not smoke or use an open flame near battery.
- Work in a properly ventilated area.
- Read and understand all instructions before attempting to operate the FoldOver 1:6 ramp.
- Inspect the ramp before use for unsafe conditions, unusual noises, or erratic movements. Do not use ramp if any of these are present, and arrange to have a Ricon authorized dealer or qualified service technician inspect ramp.
- Keep others clear of the ramp while it is operating.
- Ricon strongly recommends that the vehicle be parked on level ground when using ramp. Using the ramp when vehicle is sloped may result in a ramp angle that is too steep for safe use. In addition, the sloped vehicle may not allow the ramp to make complete contact with the ground.
- The FoldOver 1:6 ramp and other system components require periodic maintenance. Ricon recommends a thorough vehicle inspection by a Ricon authorized dealer or qualified service technician at least once every six months. To maximize safety, the ramp and related components should be maintained at their highest level of performance.
- Read and comply with warning labels attached to ramp.

B. DAILY INSPECTION

Check ramp daily, following the Daily Inspection outlined in **Table 3-1**. Meet all inspection criteria before allowing passengers on ramp.

TABLE 3-1: DAILY INSPECTION

INSPECTION POINT	CHECK
Ramp controller	• Power ON/OFF switch operates correctly. • Power On indicator illuminates when Power ON/OFF switch is ON. • DEPLOY and STOW switches operate correctly. • No unusual noises or erratic movements when ramp is deploying or stowing.
Ramp and surrounding area	Vestibule area is free of loose objects and trim pockets are free of debris.
Ramp non-slip surfaces	• Surface is clean and free of slippery or sticky substances that could compromise user safety. • Surface is intact and secure, and loose edges, if present, cannot create a stumbling hazard.

END OF TABLE

C. MAINTENANCE SCHEDULE

Regular maintenance and inspection of the Ricon FoldOver 1:6 ramp provides optimum performance and reduces the need for repairs. Maintain the ramp as directed in **Table 3-2**. Perform ramp maintenance more frequently during heavy use (more than 20 cycles per day).

⚠ CAUTION!

~ This Ricon Product Is Complex ~

Required warranty period maintenance and repairs must be done at a Ricon authorized dealer or qualified service facility. Improper maintenance, use of non-Ricon replacement parts, or product modification will void warranty and can result in unsafe operating conditions. We recommend that a Ricon authorized dealer or qualified service facility continue maintenance inspections when warranty ends.

TABLE 3-2: MAINTENANCE SCHEDULE

INSPECTION POINT	ACTION
– 6,000 MILE INSPECTION –	
Electrical System	• Check all electrical cables and fittings; tighten or replace as necessary • Check chain spring assembly for wear or missing parts.
Cover Fasteners	Check all threaded fasteners for looseness, and retighten as necessary.
Non-slip surface	Visually check for damage to surface, and for loose or missing non-slip material.
Ramp Interior	Visually check ramp interior area and remove accumulated dirt and debris.
Decals	Visually check for illegibility or damage, replace as necessary.
– 12,000 MILE INSPECTION –	
Wiring harnesses	Check wiring insulation for heavy abrasions, and connectors for looseness. Replace as necessary.
Fasteners	Check all threaded fasteners for tightness and retighten as necessary.

TABLE 3-2: MAINTENANCE SCHEDULE	
INSPECTION POINT	**ACTION**
Non-slip surfaces	Check non-slip surface for excessive wear or damage (rips, tears, peeling, etc.), and replace as necessary.
– 24,000 MILE INSPECTION –	
Chain Drive Assembly	Grease or oil to lubricate parts is NOT recommended. Keep components clean and free of debris. Refer to installation section for chain drive assembly replacement.
END OF TABLE	

D. RAMP COMPONENT INFORMATION

Ricon FoldOver 1:6 Ramp uses electrical power from the host vehicle to deploy and stow the ramp. Vehicle electrical power is converted to mechanical force, which is used to move the ramp. Electrical components are described below. Please refer to **Figures 3-4** for electrical diagram.

1. MOTOR DRIVE SYSTEM

The ramp employs an electro-mechanical motor drive system (contained within the ramp enclosure). Settings are programmed in the motor drive system and is preset at Ricon.

The motor drive system provides mechanical force to the chain/spring actuator assembly when either the DEPLOY or STOW switch is activated. Ricon recommends operating the ramp while the vehicle engine is running in order to minimize current drain on the vehicle battery.

2. CHAIN/SPRING ACTUATOR ASSEMBLY

Two factory adjusted chain/spring actuator assemblies control the Stow and Deploy motion of the FoldOver 1:6 ramp. Their adjustment determines the degree to which the ramp will rotate opened or closed.

3. ELECTRONIC CONTROLLER

The electronic controller interprets DEPLOY and STOW requests and controls ramp functions. It contains integrated circuits (ICs), relays, fuses, and associated parts. The ICs cannot be accessed externally. The 55-pin ramp connector receives 24V to power the controller and sends 24V to power the motor drive system.

Refer to **Figure 3-1** for connector and controller connection. Controller only requires one 55-pin connector connection.

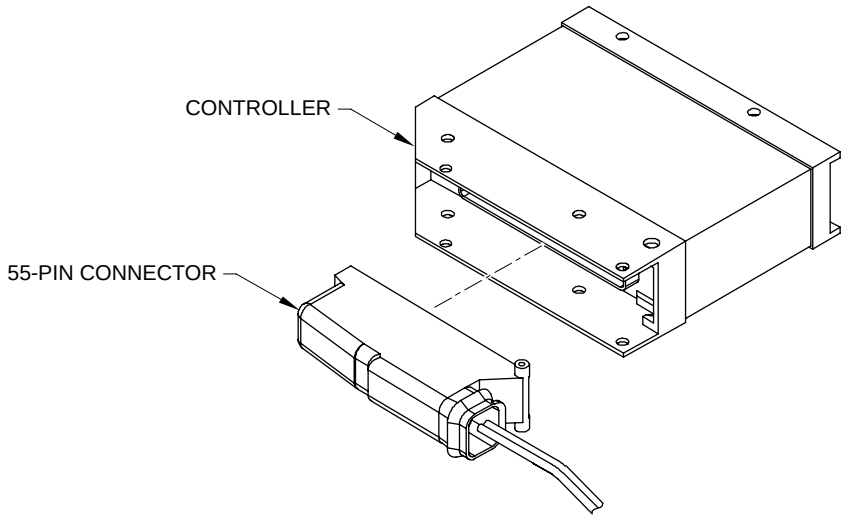

FIGURE 3-1: CONTROLLER

NOTE: Voltage levels are 24 to 28 VDC in this application.

4. SENSOR LIGHT ACTIVITY DURING RAMP MOVEMENT

The FoldOver 1:6 ramps has two ramp positions that are monitored by the controller. This position is fully stowed to deployed position. The ramp must be in the fully stowed area before the electrical interlock output signal will turn on (24VDC). This is done to reduce the possibility of a passenger tripping on the front edge of the ramp when it is not stowed completely as well as preventing the bus from operating or moving when ramp is deployed.

Refer to **Table 3-3**. The status of the sensor lights (on or off) and the interlock output (0VDC or 24VDC) occur when the ramp is either STOWED or DEPLOYED. Note that the interlock output has both a normal and an inverted output. This table applies to the normal output.

TABLE 3-3: SENSOR LIGHT AND INTERLOCK OUTPUT STATUS

POSITION	DEPLOY LIGHT	STOW LIGHT	INTERLOCK OUTPUT
STOWED	OFF	OFF	0VDC
DEPLOYED	ON	OFF	24VDC

End of Table

5. CIRCUIT BREAKERS AND FUSES

The bus builder installs a 50-amp circuit breaker for 24V applications to protect ramp control circuits. Refer to **Table 3-4** for harness fuses.

6. ELECTRICAL DIAGRAMS

Refer to **Figure 3-2** for a description of plug and receptacle designations used on schematic.

Refer to **Figure 3-4** for an overall wiring diagram of the ramp system. The wiring diagram is located at the end of this chapter.

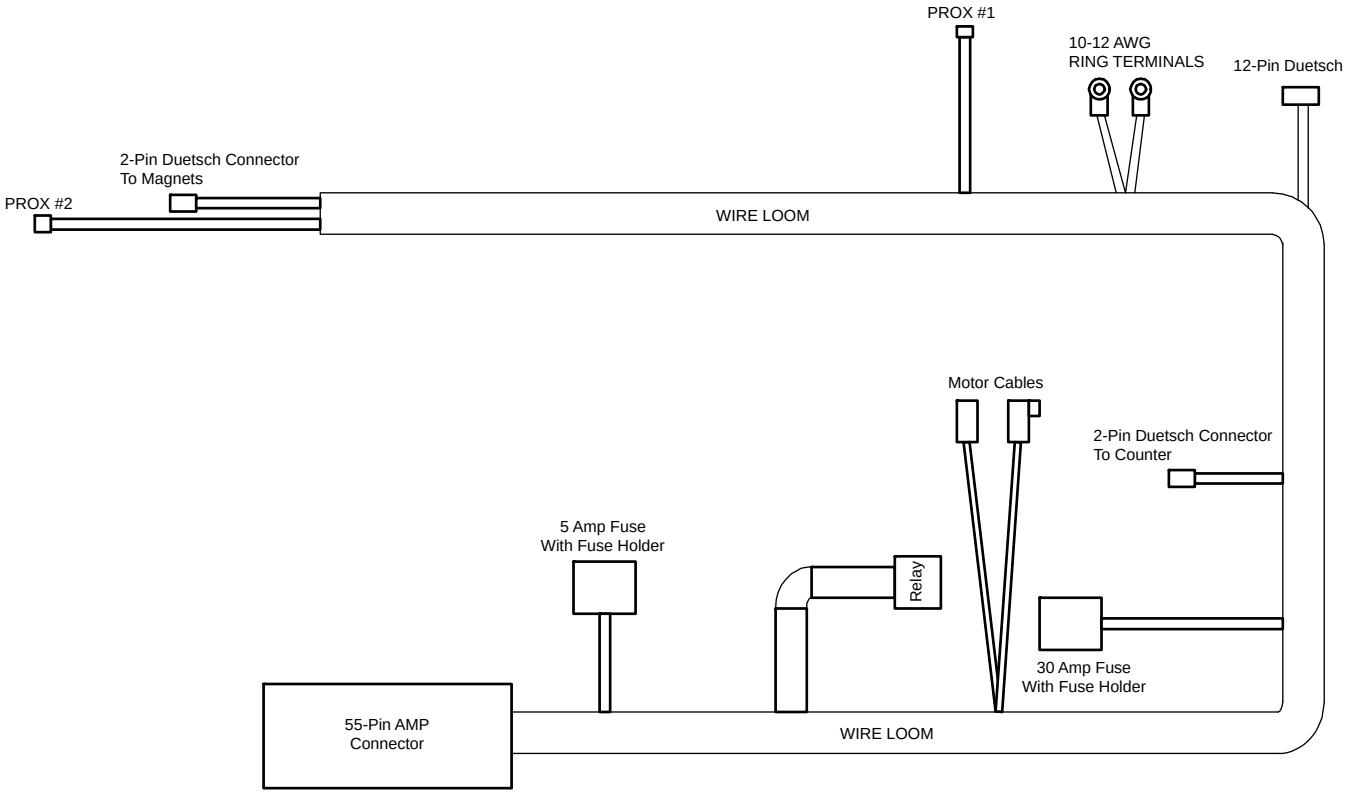

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FIGURE 3-2: CONNECTOR CONFIGURATION

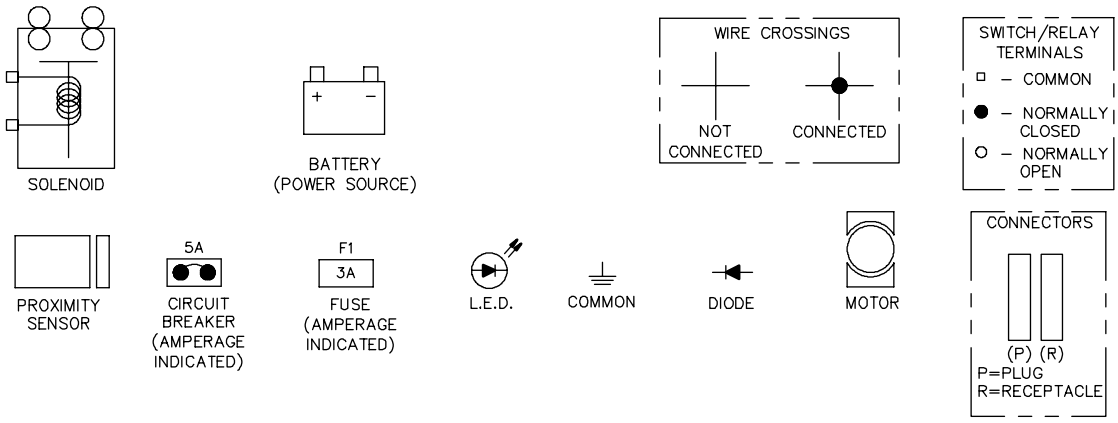

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FIGURE 3-3: SCHEMATIC SYMBOLS

TABLE 3-4: HARNESS FUSES

FUSE	RATING	CIRCUIT
F1	5 AMP	Lift Enable (Ramp Switch)
F2	30 AMP	24V High Voltage (Motor Power)
END OF TABLE		

E. WIRING DIAGRAM

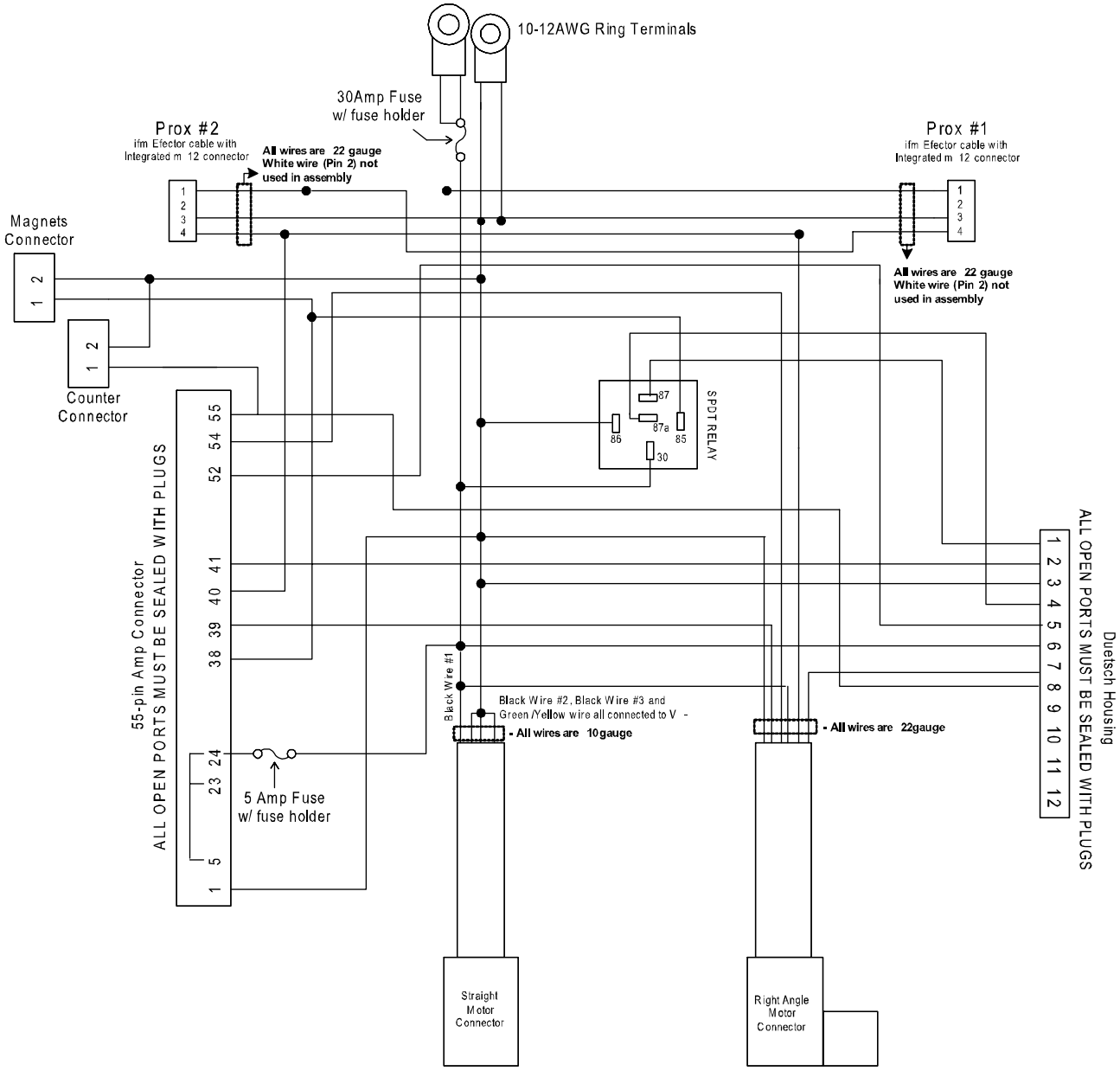

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FIGURE 3-4: ER7-SERIES 1:6 RAMP WIRING DIAGRAM

-BACK TO TOP- -PRINT CHAPTER- - NEXT CHAPTER-